MMS Alaska OCS Region

Focus Sheet

Research monitoring for Development--ANIMIDA

The $3.3 million, multi-year Arctic Nearshore Impact Monitoring in the Development Area or ANIMIDA study is designed to collect baseline and monitoring information around the first proposed offshore developments in the Alaska Beaufort Sea. These developments are “Northstar” in State waters, but with approximately 20 percent of the oil reservoir on the Federal OCS, and “Liberty”, in Federal OCS waters and for which the MMS Alaska OCS Region is currently completing the Final Environmental Impact Statement.

Sites Monitored

Both Northstar and Liberty sites are located nearshore in the central Beaufort Sea. Northstar is located west of Prudhoe Bay. Liberty is located east of Prudhoe Bay. The sites are about 34 miles apart. Northstar has been developed as an artificial island with a subsea pipeline to shore and is expected to begin production this fall. Liberty is still in design and planning phases but would likely be similar to Northstar’s design. However, Liberty is protected from pack ice by barrier islands, while Northstar lies outside the barrier islands, in a more dynamic ice environment.

The timing of development for Northstar and Liberty has provided some specific advantages for achieving ANIMIDA monitoring goals. Northstar construction started in winter 1999-2000. Liberty construction will not start before winter 2002-2003. In order to get an early baseline, ANIMIDA started in the summer of 1999 and collected background information at both Northstar and Liberty. Additional monitoring was done during Northstar’s construction and will be done during the first year of production. To some extent, ANIMIDA’s sampling near Liberty will serve as a control for monitoring potential effects of Northstar.

Study Design and Management

The OCS Lands Act requires MMS to monitor OCS development to identify significant changes in the quality or productivity in potentially affected marine environments. In addition to providing the necessary long-term study continuity, ANIMIDA's design maximized stakeholder participation. MMS, along with other State and Federal agencies, the North Slope Borough, and the public needed to consider what the actual site-specific impacts of oil development might occur near Northstar and Liberty. ANIMIDA was designed to address both the initial site-specific monitoring issues identified by Federal, State, and local agencies and additional, subsequent monitoring issues as they developed in the EIS process. ANIMIDA began with an 18-month first phase which outlined specific objectives focused on the physical environment. The second phase consists of overlapping, more extensive, multi-year studies with broader, multi-disciplinary objectives. In addition to widely attended planning workshops, the study design was reviewed at important milestones by the local government, a Scientific Review Board. A special subcommittee of the MMS Scientific Committee, an independent nationwide group of science experts, also reviewed the study design.

Contractors were evaluated on both technical expertise and the breadth of that expertise among the physical, chemical, biological and socio-economic sciences.

Scientific Contractors
The Arthur D. Little, Inc. won the ANIMIDA contract with a team of consisting of ADL, Bolt, Beranek, and Newman Technologies, Florida Institute of Technology, Applied Marine Sciences, Kinnetic Laboratories, and Harvard Design and Mapping Company, Inc. The Arthur D. Little team was out in the field within a month of winning the contract. The initial Phase I scientific objectives were monitoring baseline trace metal and hydrocarbon concentrations in the sediment, monitoring baseline noise levels in water, air, and ice, and developing a database. In addition to it's own research, ANIMIDA supplied logistical support for a concurrent MMS/University of Alaska cooperative research project on under-ice currents using current meter moorings in the study area.

Ongoing Activities and Preliminary Findings
ANIMIDA Phase I found the sediments in the study area contained natural levels of the 16 metals studied with only minor exceptions. Although no changes through time were found in total polycyclic aromatic hydrocarbons (PAH) concentrations versus earlier MMS studies in the 1980's, there were substantial differences in the sorts of PAH's found. This result suggests there an apparent decrease in petroleum related PAH inputs and/or increase in PAH's from burning of organic materials like peat, coal, oil, etc.

Based on Phase I results, recommendations from the Core Contractor and Scientific Review Board and public input, MMS prioritized and funded seven Phase II tasks. Proposals for individual multi-year tasks were reviewed in July 2000, and approved in August 2000. Three groups were in the field a week after winning contracts. These tasks include:

Project Management - The ADL continues Core Contractor Program Management, Logistics, Database and Reporting. The ADL coordinates the science tasks, runs MMS launch, supplies other logistical support, coordinates the review board, coordinates and synthesizes annual and final task reports, and coordinates annual public workshops.

Sediment monitoring - Sediment monitoring continues by ADL and the FIT. Measurements include concentrations of hydrocarbons and metals in surface sediments, in dated sediment cores, and in clam and amphipod tissues. The sampling program includes revisiting stations sampled in the Beaufort Sea Monitoring Program in 1980’s.

Suspended Sediments - The FIT is investigating sources, concentrations, and dispersion pathways for suspended sediment in the ANIMIDA area.

Metal and Hydrocarbon Partitioning - The FIT and ADL are examining the partitioning of potential metal and hydrocarbon contaminants between dissolved and particulate phases in the ANIMIDA area waters.

Boulder Patch Biological Community- LGL Research Associates and University of Texas are linking water turbidity and total suspended sediment loading to kelp productivity in the underwater “Boulder Patch”. The Boulder Patch is the largest

kelp community in the Beaufort Sea and has been considered an Area of Special Biological Concern by MMS since first OCS exploration in the Beaufort Sea.

Contaminants in Biota - AMS is performing a baseline characterization of man-made contaminants in biota associated with the ANIMIDA area. The review board recommended that the study concentrate on fish, but also include analyses on bowhead whale tissues obtained from subsistence whalers.

Subsistence Activities - LGL and Applied Sociocultural Research are monitoring subsistence whaling near Cross Island in the ANIMIDA study area annually. Cross Island is the base from which Inupiat hunters from the village of Nuiqsut conduct subsistence whaling. Contractors will work with the whale hunters to document effects of offshore oil activities on the whale hunt and to develop a self-reporting system that can provide this information to MMS and others after the task is completed.

Environmental Protection

The ultimate goal of the MMS Alaska OCS Region is to assure effective environmental protection during OCS development and production. The ANIMIDA project, through the adoption and implementation of its "ANIMIDA Monitoring Indicator Matrix for Decision Making" provides a crucial real-time linkage between ANIMIDA scientists and the Alaska Regional Office. Each activity above has identified a Key Monitoring Result or Parameter for Decision Making which, in the event of unusual trends or change, will trigger notification of the Alaska MMS office. Thus, in the unlikely event of such changes, MMS will be able to quickly and effectively take any necessary action to assure protection of the environment near Northstar and Liberty.

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